

Remarks

I. INTRODUCTION

Claims 1-5, 9-17, 19, 31-52, 62-63, and 74-96 are pending in this application. Claims 6-8, 18, 20-30, 53-61, and 64-73 were previously withdrawn from consideration without prejudice by Election filed on May 19, 2007. By this amendment, claims 1-2, 4, 9, 15, 31, 62-63, 76, 79-81, 84-85, and 87-89 are hereby amended to more clearly distinguish over the art of record and new claim 96 is added. Reconsideration in view of the forgoing amendments and following remarks is respectfully requested. No new matter has been introduced by this amendment.

II. PRIOR REJECTIONS UNDER § 112

Applicant wishes to thank the examiner for withdrawing the rejection to claims 5, 11-12, and 75-76 under 35 U.S.C. § 112, second paragraph.

III. ALLOWABLE SUBJECT MATTER

The Office Action indicates that claims 17, 19, 43-46, and 48-49 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and intervening claims. Applicant sincerely appreciates the indication of allowable subject matter.

IV. NEW SUBJECT MATTER

Applicant adds new dependent claim 96. New claim 96 is allowable as a matter of law for at least the reason that this claim depends from allowable independent claim 1. *In re Fine*, 837 F.2d 1071 (Fed. Cir. 1988); *Minnesota Mining and Mfg. Co. v. Chemque, Inc.*, 303 F.3d 1294, 1299 (Fed. Cir. 2002).

V. CLAIM REJECTIONS AND OBJECTIONS

Claims 1-5, 9-16, 31-35, 50-52, 62-63, 74 and 81-95 stand rejected as allegedly being anticipated by *Allen et al.* (U.S. 5,749,372) pursuant to 35 U.S.C. § 102(b); claim 75 stands rejected as allegedly being unpatentable over *Allen et al.* as applied claim 63 and in view of *Muller* (U.S. 4,865,610) pursuant to 35 U.S.C. § 103(a); claims 36-42, 47, and 76-80 stand

rejected as allegedly being unpatentable over *Allen et al.* in view of *Elwell* (U.S. 5,394,035) pursuant to 35 U.S.C. § 103(a); and claims 17, 19, 43-46, and 48-49 stand rejected to as being dependent upon a rejected base claim. Applicant respectfully traverses the rejections.

1. With respect to the rejection of claims 1-5, 9-16, 31-35, 50-52, 62-63, 74 and 81-95 under 35 U.S.C. § 102(b) over *Allen et al.*, Applicant offers the following.

a. Independent Claims 1, 4, 9, 15, 31, 62, 63, 81, 85, and 90

The Office Action indicates that claims 1, 4, 9, 15, 31, 62, 63, 81, 85, and 90 stand rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by *Allen et al.* Applicant respectfully traverses this rejection for at least the reason that *Allen et al.* fails to disclose, teach, or suggest the all of the features in the cited claims. Representative of those rejected claims, claim 1 recites:

A switch which comprises:

- a. a tilt-sensitive transducer that produces an output signal in response to a user manipulating said transducer;
- b. a differentiator adapted to receive said output signal and to determine a rate-of-change of said output signal;
- c. means, connected to said differentiator, for performing a first switching function based at least in part on the determined rate-of-change.

Applicant respectfully submits that independent claim 1 patently defines over *Allen et al.* for at least the reason that *Allen et al.* fails to disclose, teach, or suggest at least “a tilt-sensitive transducer”, “a differentiator adapted to receive said output signal and to determine a rate-of-change of said output signal”, and “means, connected to said differentiator, for performing a first switching function based at least in part on the determined rate-of-change” as recited in claim 1. More specifically, *Allen et al.* teaches providing an audible feedback to a user based on the user’s desired and actual levels of performing an activity. (Col. 1, lines 64-67). The invention of *Allen et al.* allows a user to monitor the user’s current and instantaneous activity level with direct and instantaneous audible feedback on a current level of performance. (Col. 2, lines 46-49).

For at least the reasons stated by Applicant in the last response, *Allen et al.* does not disclose a tilt-sensitive transducer. More specifically, *Allen et al.* fails to disclose a tilt-sensitive transducer but rather discloses an “accelerometer.” The *Allen et al.* reference specification is replete with references to sensing “acceleration” and fails to disclose sensing tilt or orientation.

For instance, the very recitation relied on by the examiner, col. 2, lines 60-67, clearly recites the “piezoelectric transducer device acting as a sensor of the user’s **acceleration** The device senses an **acceleration** induced by the user’s activity. If a single transducer sensor is used, the monitor is most sensitive to a single plane of body motion, i.e., up and down movement.” (Emphasis added). *Allen et al.* does not suggest, much less teach, sensing of tilt or orientation. The reliance on the recitation at col. 7, line 32 through col. 8, line 11, is likewise misplaced. The part identified in the specification is an accelerometer, not a tilt-sensitive transducer. The technical publication describing this part is available online via Morgan Electro Ceramics website at <http://www.morganelectroceramics.com/pdfs/tp245.pdf>. This device produces a second derivative type output, e.g., acceleration, and does not produce a first derivative type output, e.g., tilt or orientation.

Moreover, *Allen et al.* fails to disclose, teach, or suggest using a differentiator to determine a rate-of-change. The Office Action erroneously concludes that the analog-to-digital converter and amplifier detector of *Allen et al.* function in a manner comparable to the differentiator of claim 1. (Office Action, page 4). In reality, the analog-to-digital converter and amplifier detector of *Allen et al.* fail to perform any differentiation at all. Conversely, as described in the application, the present invention teaches a rate-of-change switch which uses a calculus derivative to calculate and determine the rate-of-change. (Fig. 11; paras. [0165]-[0167]). The analog-to-digital converter and amplifier detector of *Allen et al.* instead simply convert the analog signal of the piezoelectric transducer to an audible signal. (Col. 7, lines 37-40). The Office Action incorrectly asserts this conversion to be differentiation. More specifically, the Office Action attempts to find differentiation by reasoning that the “analog-to-digital converter unit 22 and an amplifier/detector 23 convert output signal to input to the control unit (12) differentiate from walking to reach or exceed a minimum acceleration in order to initiate feedback.” (Office Action, page 4). However, this “differentiation” does not determine a rate-of-change of the output signal as claimed above. Although the disclosure of *Allen et al.* speaks of acceleration, the invention of *Allen et al.* does not actually determine a rate-of-change of distance, velocity, or acceleration. Specifically, *Allen et al.* does not suggest or refer in any way to any derivative for determining rate-of-change. As described in the specification, unlike *Allen et al.* the present invention utilized a first derivative (and in some cases a second derivative) to determine a rate-of-change. (para. [0167]). *Allen et al.* instead simply recognizes

“[a] threshold acceleration sufficient to indicate activity performance by the user.” (Col. 4, lines 49-51). The *Allen et al.* invention wholly fails to determine or calculate any rate-of-change whatsoever. More specifically, *Allen et al.* fails to disclose, teach, or suggest at least “a differentiator adapted to receive said output signal and to determine a rate-of-change of said output signal” as recited in claim 1. For at least these reasons, independent claim 1 patently defines over *Allen et al.*

These same arguments apply to independent claims 4, 9, 15, 31, 62, 63, 76, 81, 85, and 90. For instance, each of these claims also teach determining a rate-of-change as in independent claim 1. For at least this reason, independent claims 4, 9, 15, 31, 62, 63, 76, 81, 85, and 90 are allowable.

b. Independent Claim 50

The Office Action indicates that claim 50 stands rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by *Allen et al.* Applicant respectfully traverses this rejection for at least the reason that *Allen et al.* fails to disclose, teach, or suggest the all of the features in claim 50. Specifically, claim 50 recites:

A method which comprises:

- a. body-member producing first and second proportional output signals; and
- b. controlling both first and second proportional functions and a switching function of an apparatus in response to said output signals, wherein the switching function is controlled based on a rate-of-change of at least one of said first and second proportional output signals.

Applicant respectfully submits that independent claim 50 patently defines over *Allen et al.* for at least the reason that *Allen et al.* fails to disclose, teach, or suggest at least “controlling both first and second proportional functions and a switching function of an apparatus in response to said output signals, wherein the switching function is controlled based on a rate-of-change of at least one of said first and second proportional output signals” as recited in claim 50. More specifically, *Allen et al.* teaches providing an audible feedback to a user based on the user’s desired and actual levels of performing an activity. (Col. 1, lines 64-67). The invention of *Allen et al.* allows a user to monitor the user’s current and instantaneous activity level with direct and instantaneous audible feedback on a current level of performance. (Col. 2, lines 46-49).

However, *Allen et al.* wholly fails to suggest “controlling both first and second proportional functions and a switching function of an apparatus in response to said output

signals, wherein the switching function is controlled based on a rate-of-change of at least one of said first and second proportional output signals” as recited in claim 50. The Office Action alleges that the control unit of *Allen et al.* is equivalent to the recited element of the claimed invention. However, the Office Action is incorrect in its assertion. More correctly, the control unit of *Allen et al.* simply allows a user to set a desired activity level and provides the user with an audible feedback. (Figs. 1-5). *Allen et al.* does not provide for controlling both first and second proportional functions and a switching function of an apparatus as in claim 50. Specifically, *Allen et al.* fails to disclose, teach, or suggest at least “controlling both first and second proportional functions and a switching function of an apparatus in response to said output signals, wherein the switching function is controlled based on a rate-of-change of at least one of said first and second proportional output signals” as recited in claim 50.

c. Dependent Claims 2-3, 5, 10-14, 16, 32-35, 51-52, 74, 82-84, 86-88, and 90-95

The Office Action indicates that dependent claims 2-3, 5, 10-14, 16, 32-35, 51-52, 74, 82-84, 86-88, and 90-95 stand rejected under 35 U.S.C. §102(b) as allegedly being anticipated by *Allen et al.* Applicant respectfully traverses this rejection on the grounds that *Allen et al.* fails to disclose, teach, or suggest all of the claimed elements. More specifically, dependent claims 2-3 are allowable for at least the reason that these claims depend from and include the elements of allowable independent claim 1. Dependent claim 5 is allowable for at least the reason that this claim depends from and includes the elements of allowable independent claim 4. Dependent claim 16 is allowable for at least the reason that this claim depends from and includes the elements of allowable independent claim 15. Dependent claims 32-35 are allowable for at least the reason that these claims depend from and include the elements of allowable independent claim 31. Dependent claims 51-52 are allowable for at least the reason that these claims depend from and include the elements of allowable independent claim 50. Dependent claim 74 is allowable for at least the reason that this claim depends from and includes the elements of allowable independent claim 63. Dependent claims 82-84 are allowable for at least the reason that these claims depend from and include the elements of allowable independent claim 81. Dependent claims 86-88 are allowable for at least the reason that these claims depend from and include the elements of allowable independent claim 85. Dependent claims 89-95 are allowable for at least the reason that these claims depend from and include the elements of allowable

independent claim 89. *In re Fine*, 837 F.2d 1071 (Fed. Cir. 1988); *Minnesota Mining and Mfg.Co. v. Chemque, Inc.*, 303 F.3d 1294, 1299 (Fed. Cir. 2002).

2. With respect to the rejection of claim 75 under 35 U.S.C. § 103(a) over *Allen et al.* in view of *Muller*, Applicant offers the following.

The Office Action indicates that dependent claim 75 stands rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over *Allen et al.* in view of *Muller*. Applicant respectfully traverses this rejection on the grounds that *Allen et al.* fails to disclose, teach, or suggest all of the claimed elements. More specifically, dependent claim 75 is allowable for at least the reason that this claim depends from and includes the elements of allowable independent claim 63. Because *Muller* does not overcome the deficiencies of *Allen et al.*, claim 75 is allowable as a matter of law. *In re Fine*, 837 F.2d 1071 (Fed. Cir. 1988); *Minnesota Mining and Mfg.Co. v. Chemque, Inc.*, 303 F.3d 1294, 1299 (Fed. Cir. 2002).

3. With respect to the rejection of claims 36-42, 47, and 76-80 under 35 U.S.C. § 103(a) over *Allen et al.* in view of *Elwell*, Applicant offers the following.

a. Independent Claim 76

The Office Action indicates that claim 76 stands rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over *Allen et al.* in view of *Elwell*. Applicant respectfully traverses this rejection for at least the reason that neither *Allen et al.* nor *Elwell*, taken alone or in combination, disclose, teach, or suggest the all of the features in claim 76. Specifically, claim 76 recites:

A method which comprises:

- a. producing an output signal;
- b. determining a first rate-of-change of said output signal;
- c. selectively performing a switching function in response to said output signal and based at least in part on said first rate-of-change exceeding a predetermined rate-of-change threshold;
- d. determining a second rate-of-change of said output signal; and

e. preventing variations in said output signal from performing said switching function based at least in part on said second rate-of-change not exceeding said predetermined rate-of-change threshold.

Applicant respectfully submits that independent claim 76 patently defines over *Allen et al.* for at least the reason that *Allen et al.* fails to disclose, teach, or suggest at least “determining a first rate-of-change of said output”, “determining a second rate-of-change of said output signal”, and “preventing variations in said output signal from performing said switching function based at least in part on said second rate-of-change not exceeding said predetermined rate-of-change threshold” as recited in claim 76. More specifically, *Allen et al.* teaches providing an audible feedback to a user based on the user’s desired and actual levels of performing an activity. (Col. 1, lines 64-67). The invention of *Allen et al.* allows a user to monitor the user’s current and instantaneous activity level with direct and instantaneous audible feedback on a current level of performance. (Col. 2, lines 46-49). However, *Allen et al.* fails to disclose, teach, or suggest at least “preventing variations in said output signal from performing said switching function based at least in part on said second rate-of-change not exceeding said predetermined rate-of-change threshold” as recited in claim 76.

Furthermore, *Elwell* fails to overcome the deficiencies of *Allen et al.* *Elwell* teaches using an RC charging circuit and a separate RC discharging circuit to compare rate-of-change. (Abstract). However, *Elwell* fails to disclose, teach, or suggest at least “preventing variations in said output signal from performing said switching function based at least in part on said second rate-of-change not exceeding said predetermined rate-of-change threshold” as recited in claim 76.

For at least this reason, neither *Allen et al.* nor *Elwell*, taken alone or in combination, disclose, teach, or suggest the all of the features in claim 76.

b. Dependent Claims 36-42, 47, and 77-80

The Office Action indicates that dependent claims 36-42, 47, and 77-80 stand rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over *Allen et al.* in view of *Elwell*. Applicant respectfully traverses this rejection on the grounds that *Allen et al.* fails to disclose, teach, or suggest all of the claimed elements. More specifically, dependent claims 36-42, 47, and 77-80 are allowable for at least the reason that these claims depend from and include the

elements of allowable independent claim 76. Because *Elwell* does not overcome the deficiencies of *Allen et al.*, claims 36-42, 47, and 77-80 are allowable as a matter of law. *In re Fine*, 837 F.2d 1071 (Fed. Cir. 1988); *Minnesota Mining and Mfg. Co. v. Chemque, Inc.*, 303 F.3d 1294, 1299 (Fed. Cir. 2002).

4. With respect to the rejection of claims 17, 19, 43-46, and 48-49 as being dependent upon a rejected base claim, Applicant offers the following.

The Office Action indicates that dependent claims 17, 19, 43-46, and 48-49 stand rejected under 35 U.S.C. §103(a) as allegedly being dependent upon a rejected base claim. Applicant respectfully traverses this rejection on the grounds that the base claims, as described above and relied on by the Office Action, are in condition for allowance.

VI. CONCLUSION

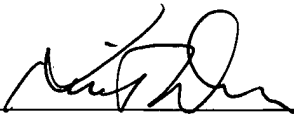
In view of the foregoing amendments and remarks, Applicant respectfully requests that the rejections of claims 1-5, 9-16, 31-35, 50-52, 62-63, 74 and 81-95 under 35 U.S.C. § 102(a) and the rejections of claims 17, 19, 36-49, and 75-80 under 35 U.S.C. § 103(a) be withdrawn. In order for a rejection under § 102 to be proper, the reference must teach each and every claim element explicitly or inherently. As set forth above, *Allen et al.* fails to meet this standard.

Applicant submits that all pending claims in this application are in condition for allowance. Favorable reconsideration and prompt allowance of the claims are respectfully requested. Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact Applicant's undersigned representative at the telephone number listed below. In the event any variance exists between the amount enclosed and the Patent Office charges, please charge or credit any difference to the undersigned's Deposit Account No. 50-4682.

Respectfully submitted,

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